Behavioral emergency response team: tools for workplace violence prevention and safety improvement

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BEHAVIORAL EMERGENCY RESPONSE TEAM: TOOLS FOR
WORKPLACE VIOLENCE PREVENTION AND SAFETY IMPROVEMENT

by

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A DNP PROJECT

Submitted in partial fulfillment of the requirements for the
Degree of Doctor of Nursing Practice
to
The School of Graduate Studies
of
The University of Alabama in Huntsville

HUNSTVILLE, ALABAMA
October 22, 2019
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DNP PROJECT APPROVAL FORM

Submitted by Mark Erwin S Lopez in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice and accepted on behalf of the Faculty of the School of Graduate Studies by the DNP project committee.

We, the undersigned members of the Graduate Faculty of The University of Alabama in Huntsville, certify that we have advised and/or supervised the candidate on the work described in this DNP project. We further certify that we have reviewed the DNP project manuscript and approve it in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice.

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ABSTRACT
The School of Graduate Studies
The University of Alabama in Huntsville

Degree: Doctor of Nursing Practice (DNP) College: Nursing

Name of Candidate: Mark Erwin S Lopez

Title: Behavioral Emergency Response Team: Tools for Workplace Violence Prevention and Safety Improvement

Background: Healthcare employees face the daily trials of behavioral disturbances among patients. Lack of staff training in managing escalating assaultive behaviors and lack of tools to identify violent patients have been identified outside psychiatry units. Objective. The purpose of this DNP project was to evaluate the effectiveness of the Aggressive Behavior Risk Assessment Tool (ABRAT) and a brief module training (BMT) in preventing workplace violence (WPV) and improving safety. Methods. A convenience sampling of 28 registered nurses from two medical units met the sampling criteria. The design of the project utilized a pre-post-test design using the 10-item Confidence in Coping with Aggression Tool. Results. Pre-test and post-test Cronbach’s alpha for this instrument is .939 and .959 respectively. A paired t-test analysis resulted in an increase in the mean score difference by 8.04 with p-value < .05. Cohen’s d = .48. There was a significant improvement in overall confidence three months after the ABRAT and BMT.

Behavioral Emergency Response Team (BERT) activations and use of physical restraints decreased. Discussion. Implementation of ABRAT and BMT have a positive effect on workplace violence prevention and safety improvement. Implications for Practice. Tools such as ABRAT and BMT are valuable in campaign against WPV. The project’s sustainability depends on leadership support aligned with continued multidisciplinary collaboration.
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Behavioral Emergency Response Team: Tools for Workplace Violence Prevention and Safety Improvement

Workplace violence (WPV) consistently presented as a significant concern in the healthcare setting. The National Institute for Occupational Safety and Health (NIOSH) estimated that among those trauma victims from WPV, 70% represented in the healthcare industry (“CDC Fast”, 2018). Acts of violence ranked third among the leading causes of lethal work injuries in the United States (“Workplace Violence”, 2016). Centers for Disease Control and Prevention reported about 186 workplace homicides from 2006 to 2015 within the private sector of the healthcare and social assistance industry (“CDC Training”, 2016). Surprisingly for injuries related to assaults and violent behaviors by other persons, there was only a 0.08% incidence rate among healthcare and social assistance workers in 2015; the data reported 13.2 physical assaults per 100 nurses and 38.8 non-physical assaults per 100 nurses per year (“CDC Training”, 2016). Insights from emergency department (ED) staff explained violence and aggression as an overwhelming and inevitable experience in their work setting (Ashton, Morris, & Smith, 2018). Given the published statistical reports against anecdotal comments, workplace violence tends to be underreported among healthcare staff especially registered nurses (Wray, 2018).

A registered nurse (RN) practices with the ethical guiding principles that maintain a patient’s dignity, autonomy, rights, and confidentiality (Gurney, Gillespie, McMahon, Kolbuk, 2017). When a patient becomes verbally and physically aggressive, the challenged RN is faced with a behavioral emergency. Approaches to this type of emergency highlight the ethical responsibility of “nonmaleficence,” the duty to do no harm (Gurney et al., 2017). The challenged healthcare staff dealing with the behavioral emergency, not usually experienced in
verbally de-escalating the behavioral crisis, will typically seek assistance from hospital police or security, or inevitably suffer from verbal abuse or physical injury. Exceptions apply if given the opportunity to work in a psychiatric unit or trained in defusing these situations. During this emergent event, the frightened staff is at risk of being assaulted; while the patient is at an increased risk of self-harm or harming others, and nearby patients or visitors are exposed to an elevated risk of aggression. The RN who aims to do no harm, becomes the victim of the harm.

In advocating to avoid harm and preventable deaths to the patient, the Institute for Health Care Improvement (2017) recommended rapid response teams (RRT) to assess patient’s condition in reducing “code blues” and to help stabilize patients outside nursing specialty units. Subsequently, the Joint Commission (2008) required a system to empower staff by having a hospital specialty team in assessing an imminent change in a patient’s condition which led to the creation of a mental health rapid response team. With the increasing incidence rates of behavioral emergencies over time, hospitals across the nation started implementing a Behavioral Emergency Response Team (BERT) or Psychiatric Response Team (PRT) to assist in de-escalating behavioral emergencies. Review of literature identified at least five hospitals nationwide that have developed a BERT to respond in aggressive behaviors outside psychiatric units. Hospitals considered BERT as the psychiatric equivalent of the hospital’s RRT for medically compromised patients.

Identification of the Problem

The National Institute for Occupational Safety and Health (NIOSH) described workplace violence (WPV) as the acts of verbal and physical assaults aimed toward individuals on duty at work (“CDC Fast”, 2018). This group laid out prevention strategies to reduce risk factors including environmental designs to provide needed security measures. Other organizations
including the American Organization of Nurse Executives (AONE) and Emergency Nurses Association (ENA) created guidelines and resources on reducing WPV (Wray, 2018). The American Society for Healthcare Risk Management (ASHRM) published a healthcare violence assessment tool that aims to focus on proactive WPV through identification of risks and reducing those risks with education, policy, design and procedure (Lenaghan, Cirrincione, & Henrich, 2018). Despite the increasing attention to this problem, there is no standardized violent risk assessment tool to predict individuals for aggressive behaviors in the hospital setting (“CDC Training”, 2016).

Across the nation, the ED and inpatient mental health settings ranked as the two most dangerous health units with WPV (Lenaghan et al., 2018). Being the access point for medical admission and port of entry to the hospital, EDs retained its recognition to have the highest WPV risk of all areas for healthcare staff, patients, and visitors (Lenaghan et al., 2018). Patients frequently used the ED as a portal for medical admissions compared to referrals from an outpatient clinic. The majority of those patients visiting the EDs sought treatment for mental health and substance abuse (Smith, Stocks, & Santora, 2015). Patients with low income or uninsured chose to visit the convenience of an ED against the stricter, appointment-driven primary clinic offices. With their unique and complicated behavioral or social needs, these patients found it challenging to deal with outpatient primary clinic and easier to resort to EDs (Crane, Collins, Hall, Rochester, & Patch, 2012). Frequent ED visitors came to the ED with a mental health diagnosis and substance abuse diagnosis usually alcohol (Smith et al., 2015). These patient populations made the potential for WPV higher.

Researchers found very limited evidence-based practice interventions to manage behavioral emergencies (Kowalenko et al., 2012). In addressing high WPV, non-
pharmacological solutions to lower the impact of the behavioral emergencies ranked higher in the treatment prevention of WPV. Though this may sound a prudent strategy over physical holds or chemical restraints, staff found it to be challenging to implement (Edward, Giandinoto, Weiland, Hutton, & Reel, 2018). Brief interventions related to substance-induced aggressive patients have mixed results. Some brief interventions offered in the ED have been focused on intimate partner violence and suicide risk and have not been evaluated rigorously (Edward et al., 2018). Most of the brief interventions used in the ED do not focus on de-escalation techniques for behavioral crisis or emergencies.

Implementation of a BERT has been evaluated to assist with de-escalating behavioral emergencies and improve workplace safety (Zicko, Schroeder, Byers, Taylor, & Spence, 2017). It has been shown to decrease workplace violence and improve staff safety and satisfaction. A county hospital in Dallas, TX recently added the role of BERT in 2017. This team aimed to respond to behavioral emergencies across the hospital outside the mental health setting. During its implementation, it discovered unexplored issues outside psychiatry units. The team identified a lack of staff training in recognizing and managing escalating assaultive behaviors that places staff at higher risk for WPV (OSHA, 2016). Nurses outside psychiatry units communicated ongoing distress and worry while caring for mentally unstable aggressive patient (Gillespie, Gates, & Berry, 2013). The team realized that the nursing staff has no means of prospectively identifying violent patients in their units. With its quality improvement efforts, BERT identified an initiative of incorporating a predictive tool and a brief module training. With the implementation of an aggressive behavior predictive tool -Aggressive Behavior Risk Assessment Tool (ABRAT), and a brief module training (BMT), the level of confidence in handling a
behavioral emergency healthcare staff and the effect on WPV is anticipated to improve. This inquiry led to the development of this Doctor of Nursing Practice (DNP) scholarly project.

**Population, Intervention, Comparison, Outcome, Time (PICOT) Question**

In a hospital setting, how does implementation of Aggressive Behavior Risk Assessment Tool (ABRAT), and a WPV Brief Module Training (BMT) affect workplace violence and safety over a period of three months?

**Statement of the Problem**

Facing an agitated and verbally aggressive patient is challenging, frightening, and emotionally demanding for the non-psychiatric registered nurses outside a psychiatric unit. Although there are several evidence-based studies on the benefits of non-pharmacological behavioral interventions for behavioral decompensation in an inpatient psychiatric hospital setting, there has been no brief training WPV course in this non-mental health setting that would affect workplace violence and safety.

In this hospital, nurses in the psychiatric unit utilize a one-time violence prevention training as part of their hiring orientation and rely on the yearly behavioral de-escalation skills one-hour training with no mandatory follow-up trainings. The nurses in the medical-surgical units of this hospital have no guidelines in recognizing or predicting aggressive behaviors. They have no directions on de-escalating behavioral emergencies while working in a non-mental health unit. It is anticipated that through the utilization of a self-assessment instrument (Confidence in Coping with Aggression instrument), the implementation of the aggressive predictive tool - Aggressive Behavior Risk Assessment Tool (ABRAT), with the implementation of a brief module training (BMT) will be valuable in addressing behavioral or psychiatric decompensation in non-mental health units including the medical-surgical units.
Aim of the Project

The purpose of this DNP scholarly project is to evaluate the effectiveness of the Aggressive Behavior Risk Assessment Tool (ABRAT) and a brief module training (BMT) in preventing workplace violence, improving safety while increasing level of confidence in handling behavioral emergencies among non-psychiatric nurses and increasing work efficiency of the Behavioral Emergency Response Team (BERT) over a period of three months. The DNP project will involve implementing ABRAT in predicting aggressive patients, and implementing BMT to assist in verbal de-escalations and practical information on preparing for, preventing, responding to and reporting workplace violence.

Review of Literature

Methods

A search of Cumulative Index to Nursing and Allied Health Literature (CINAHL), Psychiatric Information Database (PsycINFO), Psychology Articles (PsycARTICLES), and Academic Search Premier databases using a combination of key words and phrases identified four articles related to BERT, three articles related to ABRAT and five articles related to improving clinician confidence in coping with patient aggression specific to the population, intervention, comparison, outcome, time (PICOT) question. The words used were behavioral emergency response team, psychiatric response team, psychiatric team, rapid response, ABRAT, workplace violence, and staff confidence.

During the search, articles identified focused on the development of the Behavioral Emergency Response Team (BERT), screening tools for predicting aggressive patients, and instruments used in evaluating educational programs in preventing workplace violence.
Behavioral Emergency Response Team (BERT)

Pestka, Hatteberg, Larson, Zwygart, Cox, and Borgen (2012) described the implementation of behavioral emergency response team (BERT) at a large tertiary care hospital in the Midwestern United States. This BERT included psychiatric physicians, psychiatric nurses, and security officers with similar roles to the BERT developed by Loucks, Rutledge, Hatch and Morrison (2010) which was composed of social workers and registered nurses. This behavioral team piloted in November 2008 on six medical inpatient units, selected on the patient’s co-morbid psychiatric conditions. The common reasons for BERT assistance were hyperactive delirium, with hallucinations and delusions, challenging behaviors secondary to nicotine and alcohol withdrawal, psychosis unrelated to delirium, active suicidal ideations, and disruptive personality disorders (Pestka et al., 2012). The BERT followed a flow diagram in guiding emergent behavioral interventions. The researcher concluded that not only it is a valuable resource for managing behavioral emergencies in improving patient and staff safety but also it increases staff satisfaction (Pestka et al., 2012).

Jones, Manno, and Vogt (2012) presented the development of a psychiatric RRT at a 621-bed community-based Kennedy University Hospital. The psychiatric RRT named “Tier One Alert,” piloted in 2009 in all the units of the hospital to provide early intervention preventing further psychiatric decompensation focusing on verbal de-escalation. The team included registered nurses, nursing supervisor, pharmacist and security trained in behavioral management from response units with the most cases of behavioral health patients with disruptive events. The results of this team demonstrated improvement in overall behavioral events with a 21% reduction in combined behavioral and code gray events (Jones et al., 2012).
Zicko et al. (2017) published an article regarding initiating a BERT at Fort Belvoir community hospital, a military treatment facility in Virginia. The BERT piloted on the medical-surgical (MS) unit for five months. With substantial increase in staff and patient safety, the hospital stakeholders expanded the BERT program gradually to all units in the hospital. The results of the 12-month project implementation include an 87% percent decrease in restraint use, 93% decrease in security intervention, and 90% staff assault reduction (Zicko et al., 2017). The investigators concluded that BERT initiative can be a significant resource team in increasing patient and staff safety in facilities with or without a mental health unit.

Since the implementation of BERT at Parkland Hospital in 2017, requests for BERT assistance has been steadily trending upward, averaging to 48.9 calls every month (Parkland Health and Hospital System, 2019). In January of 2019, there were a total of 75 BERT activations hospital-wide, with the highest requests from 9th Orthopedic unit (14 calls), followed by 13 Hospital A unit (8 calls). Prior to this project, a total of 89 BERT activations came from 13 Hospital A unit and 70 activations came from 9th Orthopedic unit. Implementation of the BERT continued to provide support among hospital staff in decreasing staff and patient injuries (PHHS, 2019). Though it is considered to be one of the hospital’s effective resources in addressing behavioral disturbances among patients, there is no proper aggressive risk screening strategy implemented at this hospital. Preventing WPV using a violence risk assessment tool with acceptable sensitivity and specificity and a brief module training on WPV would complement the implementation of BERT in this hospital.

**Violence Risk Assessment Tools**

The National Institute for Occupational Safety and Health (“CDC Training”, 2016) promotes use of risk assessment tools to estimate individuals for aggressive behaviors. The
organization mentions examples of assessment tools including the Triage tool, Indicator for Violent Behavior, and Danger Assessment Tool. The Triage tool asks five questions to obtain information on history of victimization, suicide attempts and assaults preventing domestic violence workplace spillover. The Indicator for Violent Behavior is better known as the five observable behaviors of Staring and eye contact, Tone and volume of voice, Anxiety, Mumbling, and Pacing (STAMP). Both these tools assess for risks in the emergency unit settings. The Danger Assessment Tool which has a scale from 1-5, assesses violence risk and approved for use in a community mental health clinic setting in New York. The NIOSH does not recommend a specific violent risk assessment tool but emphasizes that nurses use a quick practical tool.


**Aggressive Behavior Risk Assessment Tool (ABRAT)**

Kim, Ideker, and Mannes (2011) discussed and evaluated the utility of a tool in predicting aggressive patient called Aggressive Behavior Risk Assessment Tool (ABRAT) in a medical-surgical unit. After using a multivariate logistic regression model, the researchers developed a 10-item assessment tool (ABRAT) as a set of parsimonious items from a 17-item list predictive of violent behaviors. The 17-item list is a combination of an available screening tool called M55 tool and STAMP tool; it became the 10-item ABRAT as a result of this research as shown in figure 1. The researchers found ABRAT to have an acceptable inter-rater reliability at 0.647. With the cutoff score of one, the results showed sensitivity at 70.9% and specificity at 89.3%.
They concluded the tool to be supportive in anticipating aggressive patients in medical-surgical units.

In determining the usefulness of ABRAT in other settings, Kim, Young and Berry (2017) conducted another similar study in observing the utility of ABRAT among new patients in two long-term care homes. The researchers analyzed that the ABRAT’s optimal cutoff score is 2 with a sensitivity and specificity of 96.3% and 65.4% respectively. The researchers concluded that this tool is a significant initial step in predicting aggressive patients and reducing incidence of aggression in long-term facility homes.

Kim, Berry, and Young (2018) continued their investigation utilizing the ABRAT on a cohort study in Long-Term Care unit in Canada. The research led to a shorter six-item ABRAT-L that showed optimal sensitivity and specificity. Findings of an earlier aggressive event during the patient stay supported the creation of a shorter assessment tool (ABRAT-L). The researchers recommended a cut-off score of 4 with sensitivity of 55.6% and specificity of 94.2%. They concluded that the six-item ABRAT-L remains useful in predicting aggressive residents in long-term care units.

**Clinic Confidence Tool**

Thackrey (1987) developed a self-assessment tool to measure clinician confidence in coping with patient aggression as shown in figure 2. Before and after implementing “Therapeutics for Aggression” curriculum at a Veterans Affairs (VA) inpatient psychiatric unit, participants answered the 10-item questionnaire. The researcher found that the instrument has a high degree of internal consistency and precision and a measure of unidimensional construct with a 0.92 Cronbach’s alpha. Killick and Allen (2005) conducted a study in evaluating three training programs on managing aggressive behavior affecting staff confidence; using Thackrey’s
confidence tool, the study showed an increase in confidence immediately following training but returned to baseline at a one-year follow-up. Davies, Griffiths, Liddiard, Lowe and Stead (2015) utilized a similar modified clinician confidence tool, pre and post their intervention in preventing and managing aggressive behavior. It resulted to a good internal consistency with 0.88 Cronbach’s alpha and good face validity. Another study by Guay, Goncalves, and Boyer (2016) used the same instrument pre and post Omega education in intervening during an aggressive situation and concluded with a 0.96 Cronbach’s alpha. In 2018, a quasi-experimental study by Lamont and Brunero (2018) used the same tool pre and post implementation of a workplace violence workshop and demonstrated exceptional reliability with 0.95 Cronbach’s alpha. It remained a well-known tool in rating participants’ confidence in working with aggressive events. A high score indicated a strong confidence in dealing with patient aggression. The instrument was concluded to be a beneficial tool for evaluations when used as a pre and post survey measure.

**Conceptual Framework**

The BERT was adopted from the successful implementation of the rapid response teams for the medically compromised patients. The revised Iowa Model of Evidence-Based Practice framework was used for the implementation of the ABRAT and brief module training (BMT) (Buckwalter et al., 2017). This framework was commonly used for the evidence-based practice implementation. It was initiated in the early 1990s by a group of nurses from the University of Iowa Hospitals and Clinics in directing clinicians in improving quality care. The framework included ten steps involving the three main key decision points: “(a) Is this topic a priority? (b) Is there sufficient evidence? (c) Is change appropriate for adoption in practice?” (Buckwalter et al., 2017, p. 178). The first main key decision was crucial for the success of this project to obtain
more resources from the stakeholders. Once the topic has been considered significant, forming a team and conducting systematic research will assist in identifying sufficient evidence available. Designing and initiating the practice change will be implemented and then evaluated if the practice change is appropriate to the practice. Once there is integration and sustainability of the practice within the organization, the results were expected to be disseminated. The revised Iowa Model for evidence-based practice to promote excellence in healthcare is shown in figure 3 (Buckwalter et al., 2017). Figure 4 shows how this framework was applied in this project. Again, there were three main key decision points needing to be fulfilled prior to moving to the next level.

**Methods**

This DNP project implemented an Aggressive Behavior Risk Assessment Tool (ABRAT) and a Brief Module Training on WPV. Project outcomes were anticipated to demonstrate a difference in overall level of confidence in dealing with aggressive behaviors among nurses, and improvement in workplace violence report.

**Project Design**

The DNP project design was a pre-post-test design. Prior to and after the implementation of the interventions, the project participants answered a 10-item self-assessment tool called Confidence in Coping with Patient Aggression Tool (Thackrey, 1987). The project leader utilized this tool among single group of healthcare worker participants and matched the responses at three months after implementation of interventions. The project design was mixed with monitoring quality and safety outcomes through the workplace violence report.

**Participants**
Given the limits and nature of the clinical setting, this DNP project used a convenience sample of 57 participants. The sample participants include registered nurses (RNs) who are at least age 21, from the top two medical-surgical units observed to have the highest utilization of BERT consults beginning October 2017 to Jan 2019. Eligible participants can be employed full-time or part-time who have direct patient nursing care in that unit. Ineligible participants include (1) RNs who do not have direct patient nursing care such as management, and (2) work at any psychiatric unit setting. Participants who did not answer both pre-survey and post-survey were also excluded in the sample. After the post-survey, this project used a convenience sample of 28 participants matched pre-post-test. The project leader met with the participants during the first monthly staff meeting.

Setting

The project leader initiated these interventions in two nursing units, 9th Orthopedic unit and 13A Hospitalist unit, both are medical-surgical units within the hospital. The project leader chose the units with the greatest number of BERT activations as of January 2019 to initiate this project. The amount of time allotted to complete the DNP project was three months. The DNP project started its interventions on July 8, 2019 to October 13, 2019. Prior to the implementation phase, the project leader held meetings with stakeholders of the unit. The nursing staff received information about the project including the pre-survey, ABRAT and the Brief Module Training. Posters helped in reminding details of this project including links to the survey. Nursing leaders of participating unit supported implementation of the interventions and communicated during meetings.

Instrument
The validated instrument “Confidence in Coping with Patient Aggression Instrument” (Thackrey, 1987), was used to rate participants’ comfort, ability, and confidence in effectively and safely approaching aggressive patients. This instrument is a standardized scale with a unifactorial 10-item 11-point Likert scale. Pre-survey using this tool started on July 8, 2019 following the Institute of Review Board (IRB) approval. Pre-survey ended one week later prior to implementation of the two interventions. Three months after the implementation, the same survey was again given to participants with the addition of an optional comments section.

After the pre-surveys were collected, a Brief Module Training (BMT) was disseminated as an in-service to nurses and healthcare staff on the medical-surgical units. The BMT consisted of two online presentations to assist in verbal de-escalations and practical information on preparing for, preventing, responding to and reporting workplace violence. An online 17-minute BMT power point video including verbal de-escalation techniques and evidence-based recommendations on managing aggressive patients was available for nurses to review to enhance the non-pharmacological behavioral interventions, accessible either at work or at home. This short presentation focused on skills on five communication skills in the context of confrontation management: listen, empathize, ask, paraphrase, and summarize combined with offering solutions, confirming course of actions, and taking action (Williams, 2002). Staff remembered this intervention using the acronym LEAPS-OCA.

A second presentation was also distributed online and focused on preparing, preventing, responding and reporting workplace violence. The BERT educational materials and recommendations were added on the second presentation to enhance knowledge and confidence in dealing with aggressive patient. The second short presentation stressed the importance of continued education to improve preparedness and confidence in addressing aggressive patients.
Besides emphasizing education using hospital resources in preparing for workplace violence, this presentation showed available preventive tools at this hospital for workplace violence such as the ABRAT, verbal de-escalation link, and the Satori Alternatives to Managing Aggression (SAMA) training for aggressive patient used by psychiatric staff. In addition, it emphasized appropriate means of responding to this event including utilizing the BERT team. Lastly, this short training concluded on how to properly report this aggressive event either by submitting an online report (safety post), notifying the hospital police or the supervisor.

While staff learned more about the BMT, nursing staff used the Aggressive Behavior Risk Assessment Tool (ABRAT) in assessing newly admitted patients for risk of aggression. With approval from their leaders, this assessment tool became part of their nursing routine assessment. Each of the ten-item behaviors is worth one (1) point. A score of two (2) or more is considered high risk. Aggressive events will trigger de-escalation recommendations and stat BERT consults. Section B of the ABRAT report was captured by alternatively using the hospital’s Safety Post (SP). Unit leaders collected the SPs including physical and verbal attacks against staff or other patients. It was anticipated that these tools would have a positive impact on improving workplace safety and preventing workplace violence.

Data collection procedures

All pre-test and post-test survey were collected electronically. All surveys were completed by participants using REDCap (Research Electronic Data Capture) link. This link was disseminated using the posters and via email with the help of unit leaders. The project leader designed the electronic survey instrument in REDCap according to hospital policy with a link accessible anywhere within the hospital.
Following hospital IRB conditions, the project leader used REDCap to collect data from the instrument. Vanderbilt University developed this web-based application to store data for clinical research. The hospital IRB required researchers in this setting to use this Health Insurance Portability and Accountability Act (HIPAA)-compliant and highly secure database (Patridge & Bardin, 2018). After data collection, Statistical Package for the Social Sciences (SPSS) program was utilized for data analysis.

Documentation of the ABRAT checklist was initially implemented anonymously on a 4x6 paper as part of unit admission assessment, and kept in separate box for one month. Once the patient is discharged, that tool is placed in a different box for data collection. This allowed for collection of data and analysis of receiver operating characteristics with sensitivity and specificity of the tool for a limited period. ABRAT assessment was included in the hospital electronic health record (EHR) one month later as part of nurse’s progress notes and not the flowsheet.

**Ethical Considerations**

This DNP project was reviewed and approved by two Institute of Review Boards (IRB) in a span of five months. Prior to initiation of the project, the IRB governing the hospital evaluated the project and issued the approval on June 10, 2019 (Figure 5). The hospital Office of Research Administration granted the site approval on July 2, 2019. The IRB of the university reviewed the project proposal and also granted approval on July 8, 2019 (Figure 6).

**Data Analysis**

Once raw data were retrieved from REDCap, the researcher entered data into the SPSS software. Data Analysis included descriptive statistics and inferential statistics to review the sample demographics. A paired $t$-test was utilized to calculate significant difference between
mean scores of the instrument before and after the interventions. Internal consistency measurement using Cronbach’s alpha was reported. Cohen’s $d$ effect size was calculated.

**Results**

**Demographic Characteristics**

**Gender.** The gender demographic information during the initial survey are shown in tables 1 and 2. There was a paired total of 28 participants who answered the pre-survey and post-survey. The pre-survey had a total of 62 participants, two participants did not complete the survey and three participants are psychiatric nurses who work outside 9th and 13th floor units. These participants were excluded which resulted to a total of 57 subjects (N=57) from the initial list of participants. The post-survey had a total of 32 participants, four of which did not participate in completing the pre-survey and thus were excluded in the dependent $t$-test analysis.

As shown in the Table 1, female gender (N=26) is greater than male gender (N=2). From 57 initially interested survey participants, the final number of participants matching the pre-survey and post-survey analyzed is 28 (51% attrition rate).

As shown in Table 2, majority of the sample in either 9th Orthopedic and 13th A Hosp Units have female gender and most of the sample are in 9th Orthopedic unit. The percentage of female gender participants in 9th Orthopedic Unit is 92.3% and 100% in 13th A Hosp Unit.

**Education.** Table 3 shows the majority of sample in both units have a Bachelor’s Degree as the sample’s highest level of education, 88.5% in the 9th Orthopedic Unit. Table 4 shows sample in all units with 10.7% having an Associate’s degree and 3.6% having a Master’s degree.
Age. The age surveyed were grouped every five years. The majority of the sample were in age group 31-35 (28.6%) followed by group 26-30 (17.9%), and group 21-25 (14.3%) as shown in Table 5.

In analyzing the frequency of aggression by age group, age group 31-35 have the highest percentage (43.8%) of experiencing both physical and verbal aggression in the past 12 months during the pre-survey (Table 6).

Confidence in Coping with Aggression Instrument

To test the null hypothesis that the pre-intervention scores \((M=49.07, SD=16.97)\) and post-intervention scores \((M=57.10, SD=16.07)\) were equal, the project leader performed a paired samples \(t\)-test. Prior to this analysis, SPSS program analyzed and presented satisfaction of normally distributed difference scores. It estimated the skewness and kurtosis level at .678 and -.074 respectively, which meet the allowable values for a \(t\)-test (Spencer, Lay, & Lopez, 2017). The correlation between the pre-intervention and post-intervention scores at \(r= .485, p < .01\) indicates that higher scores from pre-intervention were associated with higher scores at post-intervention. The null hypothesis of equal confidence scores was rejected, \(t(27) = 2.533, p = .017\). Thus, the post-intervention mean scores were statistically significantly higher than the pre-intervention mean scores. Cohen’s \(d\) resulted to an estimated at .48 which is a medium effect based on Cohen’s (1992) guidelines.

Table 7 shows the central tendency statistics, with dispersion, confidence interval, and \(t\)-value after comparing means using a paired sample \(t\)-test pre and post- interventions. The mean confidence scores among participants increased by 8.03571 after the brief module training and ABRAT interventions. This significant difference is shown in three ways. First, with 27 degrees of freedom and referencing from the Percentage Points of Student’s \(t\) distribution, the \(t\) value
shown on Table 7, \( t(27) = 2.533, p = .017 \), is greater than the critical value of 2.052 (Burns & Grove 2009). Second, the \( p \)-value is .017 which is less than .05. Third, the confidence interval does not cross zero. Therefore, it is concluded that the instrument score means pre and post-interventions are statistically significantly different.

**Workplace Violence report**

**Restrains.** Data reported from 9\(^{th}\) Orthopedic Unit and none from 13\(^{th}\) Hospital A Unit, Table 8 shows the restraints report in the unit pre and post interventions. Three months before the initiation of the ABRAT and brief module training, there were three reported use of violent restraints in the unit. Three months after implementing the interventions, there were no reported use of violent restraints.

**BERT Activations.** Focusing on 9\(^{th}\) Orthopedic Unit, Table 9 illustrates comparison of BERT activations pre and post interventions. There were about six BERT activations from April to June in 9\(^{th}\) Orthopedic Unit. The BERT activations in 9\(^{th}\) Orthopedic unit received from July, August and September were noted at three calls also shown in that same graph.

**Aggression Report.** There are four participants who answered having verbal aggression the past three months post interventions, and six participants stated having both verbal and physical aggression. When asked if these aggressive events have been properly reported according to hospital protocol, 30\% of this group answered not properly reported the aggressive events (Table 10). In contrast to the survey-reported 9 aggressive behaviors on 9\(^{th}\) Orthopedic unit among the participants, official online retrieval of aggressive reports during the past three months from the same unit reveals only three incidents of aggressive behavior, confirming previous reports of underreporting of aggression (Wray, 2018).

**Three-month Post-Intervention Feedback**
At the end of the survey, the participants wrote comments about implementation of the ABRAT, and BMT. Comments from the participants were mostly favorable comments on how the ABRAT helped raise awareness on aggressive patients, how ABRAT allowed better understanding of the risk factors, and how the BMT provided good education on verbal de-escalation. The participants also commented on BERT as an excellent resource for workplace violence prevention. Shown in Figure 7 were some of the comments about implementation of the ABRAT and BMT. Shown in Figure 8 were comments about BERT.

**Discussion**

The current project aimed to evaluate the effectiveness of Aggressive Behavior Risk Assessment Tool (ABRAT) and the Brief Module Training (BMT) in preventing workplace violence, improving safety among healthcare staff /patients, and increasing efficiency of the Behavioral Emergency Response Team. The results from Confidence in Coping with Aggression instrument analysis indicated that the combined ABRAT and BMT made an overall positive impact on the level of staff’s confidence in dealing with an aggressive patient. Statistical significance was found on the issue of feeling safe, effective techniques, and being self-assured in the presence of an aggressive patient with \( p < 0.5 \). Starting with an initial sample of 57 participants and concluding with 32 participants during post-survey, matched sample resulted to a lower sample size of 28. The Cohen’s \( d \) effect size \( (d=0.48) \) determined the extent and magnitude of the mean difference and considered to be a moderate. These results showed a \( p \)-value that is statistically significant with an effect size considered to have moderate clinical significance.

The Cronbach’s alpha helps measure internal consistency between the items in the Confidence in Coping instrument. For this scale, the pre-test and post-test Cronbach’s alpha
demonstrated exceptional reliability at 0.939 and 0.959 respectively. The project leader found the scale to be consistently reliable in measuring clinician confidence coping with patient aggression similar to prior studies (Thackrey, 1987; Davies et al, 2015; Guay et al., 2016; Lamont & Brunero, 2018).

For this project, the project leader implemented ABRAT and BMT in two acute care units in a county hospital that allows nursing staff to identify potentially violent patients and to create an appropriate nursing plan of care relevant to the patient’s behavior. The initial ABRAT project was tested in an acute care hospital setting, making the hospital setting of this DNP project pertinent to the original ABRAT’s design.

In this acute care setting, one would like to be certain that anyone with a positive score on ABRAT will predict an aggressive behavior as opposed to having a negative test having an aggressive event. Thus, higher specificity over higher sensitivity is preferred in this clinical setting (Aggarwa, 2018). Using a higher cutoff score greater than one is preferred with the current data gathered. Though the number of ABRAT assessments seem moderate in a span of a month (116 assessments), further ABRAT assessment data can improve the Receiver Operating Characteristics (ROC) coordinates in detecting the optimal cutoffs (Aggarwa, 2018).

The ABRAT’s documentation was later transitioned to be included within the hospital electronic health record (EHR) system using the notes section only. Also, the ABRAT’s inclusion into the hospital EHR allowed nursing staff to incorporate nursing care plans applicable to the patient’s behavior (see Figure 9). This in turn increased their awareness on different nursing interventions in preventing patient’s escalating behaviors. The nursing staff in these units now received a list of optional behavioral interventions for patients assessed to have
anxiety, confusion, psychosis, mania, and aggression, which were only available to psychiatry staff in the psychiatric units.

Suggestions from staff surveyed include having a debriefing system after an aggressive event. This idea can boost staff morale and lower stigma in handling behavioral patients. Other suggestions revealed including the brief training module as part of new hire training especially with staff inexperienced with behavioral patients. Other staff mentioned including more nursing leaders from different units to meet regularly and to review learning opportunities during an aggressive event.

The resulting increase in confidence in coping with patient aggression compared from pre and post interventions (ABRAT and brief module training) suggest that even a brief training program in combination with a risk assessment tool is beneficial in preventing workplace violence. Results showed similar findings to demonstrate improvements in confidence in coping with patient aggression post-staff training (Guay et al., 2016; Price, Baker, Bee, & Lovell, 2015). Price et al. (2015) reported consisted findings in their literature review showing ninety percent of the studies with significantly higher confidence after training. Participants can readily access the Brief Module Trainings (BMT) repeatedly as their need arises. Given the positive effect of this brief module training in improving staff confidence, it can be deduced that utilizing BMT can enhance knowledge retention in between annual training for workplace violence prevention.

While it is required among psychiatry staff in the ED to renew their yearly SAMA training, this brief module training can also be used as a prerequisite to workplace violence prior to their annual SAMA renewal training.

With continued WPV prevention, safety among hospital staff is anticipated to improve. WPV injuries and days off work from injuries is expected to decrease. Prevention of WPV has
the potential to save $94,156 in cost of workplace violence by hospital patients or visitors
(Speroni, Fitch, Dawson, Dugan & Atherton, 2014)

Limitations

Several limitations relate to this project. The project design used a one-group pretest-posttest design, without including a control group. Though it is a more common design, post-test scores can be altered by maturation effects, testing effects, and hawthorn effects. Having a control or comparison group would greatly strengthen the validity of the findings.

The project leader encountered push backs from some unit leaders in participating to this project. One reason being the acuity of their unit precludes staff from their regular tasks. On the other hand, some units will not participate in the project even as control group given their low BERT activation rates. Participation in the project is limited by units commonly utilizing the Behavioral Emergency Response Team and their management approval.

Potential researcher bias cannot be eliminated as the person who created the presentation of the workplace violence brief training is also the primary investigator for this project. Non-randomization of the group for practical reasons is another limitation of applicable to this project. Although there are about 57 participants in the pretest and 32 participants in posttest group, the effect size is considered moderate. Hawthorne effect is another limitation that may change participants behavior to become more productive, thus potentially increasing their posttest scores (Burns & Grove, 2009).

With the ABRAT instrument, patients who have high scores are identified. Currently, patients assessed to have high ABRAT scores are manually identified by placing a high-risk indicator outside their room. Though it may seem ambitious to modify the system for this DNP project, it is a costly upgrade to include the ABRAT instrument into the electronic health record
The benefits of reducing staff injury, increased confidence in handling aggression and improved safety will be weighed against the cost of documentation upgrades and staff injury absences.

**Implication for Practice**

Following the Iowa Model for evidence-based practice, the implementation of ABRAT can be duplicated in other units of the hospital during the admission process for detecting potentially violent clients. As a prevention instrument in monitoring and reduction of patient aggression, admitting units including emergency departments can benefit from this predictive tool. Learning the skills of verbal de-escalation using therapeutic communication via the Brief Module training in combination with the ABRAT instrument can heighten the awareness and predictability of an aggressive event, thus allowing reasonable time to implement appropriate interventions on high risk clients. With the Iowa Model, hospital-wide implementation of these interventions is anticipated.

While in the early stage of the project, having a more robust documentation system in incorporating ABRAT and monitoring aggression reports could assist in continuous safety improvement and WPV prevention. Having a warning flag system inside the EHR can help hospital staff raise their awareness of the patient’s potential for aggression. Creation of a list of high-score ABRAT patients can help BERT in identifying patients early prior to the aggressive event. With lower aggression reports from the official hospital system versus the survey reported in this project, an opportunity for improvement in having an effective reporting system should be prioritized.

A criterion for success of this project initiative depends on ensuring sustainability. Involving key hospital stakeholders in the development and implementation of interventions in
this project will foster sustainability (Chambers, 2015). Support from leaders in different units, collaboration among managers and staff, continued willingness to improve and to learn from opportunities warrant and promote sustainability of evidence-based initiatives. Assuming successful sustainability of these interventions in the unit and eventually hospital-wide, BERT requests should decrease as staff becomes more confident and comfortable in addressing aggressive patient behaviors and therefore increase BERT efficiency.

**Conclusion**

Evidence-based studies have proven the positive influence of implementing BERT in deescalating behavioral emergencies and as a valuable tool in workplace violence prevention and improving staff and patient safety. Since BERT has been implemented in this hospital setting and has been reported to help increase the safety presence for hospital staff, the Iowa Model for evidence-based practice allowed the project leader of this scholarly paper to utilize two interventions to continue to improve WPV. Using the survey approach, this project demonstrated that a tool for workplace violence other than the BERT, specifically the implementation of the ABRAT instrument and a brief module training can have a direct positive impact on staff confidence in coping with aggressive patient, and indirect positive impact on patient/staff safety, physical restraints and BERT efficiency.

Future research is needed to further generalizability and ROC of ABRAT in acute care hospital setting. Future research is also needed in navigating staff’s perception on workplace violence underreporting that may affect current workplace violence interventions.
DNP Project Product

The journal selected for this project is the Journal of Psychiatric and Mental Health Nursing. This international journal publishes articles in multiple aspects of nursing that aims to develop growth of practice, policy, education and research. It aims to publish rigorously conducted studies, literature reviews and consumer practitioner narratives that leads to addition of new knowledge globally. Not only does it allow single or multiple research from different academic disciplines, the journal’s scope also encourages a variety of critical debate and exchange of ideas understood by a wide range of readers. The papers require clear implications for mental health nursing in a variety of nursing disciplines.
BEHAVIORAL EMERGENCY RESPONSE TEAM: TOOLS FOR
WORKPLACE VIOLENCE PREVENTION AND SAFETY IMPROVEMENT

by

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Abstract

Background: Healthcare employees face the daily trials of behavioral disturbances among patients. Lack of staff training in managing escalating assaultive behaviors and lack of tools to identify violent patients have been identified outside psychiatry units.

Objective. To evaluate the effectiveness of the Aggressive Behavior Risk Assessment Tool (ABRAT) and a brief module training (BMT) in preventing workplace violence (WPV) and improving safety.

Methods. A convenience sampling of 28 registered nurses from two medical units met the sampling criteria. The design utilized a pre-post-test design using the 10-item Confidence in Coping with Aggression Tool.

Results. Pre-test and post-test Cronbach’s alpha for this instrument is .939 and .959 respectively. A paired t-test analysis resulted in an increase in mean score difference by 8.04 with p-value < .05. Cohen’s d= .48. There was a significant improvement in overall confidence three months after the ABRAT and BMT. Use of Behavioral Emergency Response Teams (BERT) and use of physical restraints decreased.

Discussion. Implementation of ABRAT and BMT have a positive effect on workplace violence prevention and safety improvement.

Implications for Practice. Tools such as ABRAT and BMT are valuable in campaign against WPV. The project’s sustainability depends on leadership support aligned with continued multidisciplinary collaboration.
Behavioral Emergency Response Team: Tools for Workplace Violence Prevention and Safety Improvement

The National Institute for Occupational Safety and Health (NIOSH) described workplace violence (WPV) as the acts of verbal and physical assaults aimed toward individuals on duty at work (“CDC Fast”, 2018). This group laid out prevention strategies to reduce risk factors including environmental designs to provide needed security measures. Other organizations including the American Organization of Nurse Executives (AONE) and Emergency Nurses Association (ENA) created guidelines and resources on reducing WPV (Wray, 2018). The American Society for Healthcare Risk Management (ASHRM) published a healthcare violence assessment tool that aims to focus on proactive WPV through identification of risks and reducing those risks with education, policy, design and procedure (Lenaghan, Cirrincione, & Henrich, 2018). Despite the increasing attention to this problem, there is no standardized violent risk assessment tool to predict individuals for aggressive behaviors in the hospital setting (“CDC Training”, 2016).

Workplace violence (WPV) consistently presented as a significant concern in the healthcare setting. The National Institute for Occupational Safety and Health (NIOSH) estimated that among those trauma victims from WPV, 70% represented in the healthcare industry (“CDC Fast”, 2018). Acts of violence ranked third among the leading causes of lethal work injuries in the United States (“Workplace Violence”, 2016). Centers for Disease Control and Prevention reported about 186 workplace homicides from 2006 to 2015 within the private sector of the healthcare and social assistance industry (“CDC Training”, 2016). Surprisingly for injuries related to assaults and violent behaviors by other persons, there was only a 0.08% incidence rate among healthcare and social assistance workers in 2015; the data reported 13.2
physical assaults per 100 nurses and 38.8 non-physical assaults per 100 nurses per year (“CDC Training”, 2016). Insights from ED staff explained violence and aggression as an overwhelming and inevitable experience in their work setting (Ashton, Morris, & Smith, 2018). Given the published statistical reports against anecdotal comments, workplace violence tends to be underreported among healthcare staff especially registered nurses (Wray, 2018).

In advocating to avoid harm and preventable deaths to the patient, the Institute for Healthcare Improvement (2017) recommended rapid response teams to assess patient’s condition in reducing “code blues” and to help stabilize patients outside nursing specialty units. Subsequently, the Joint Commission (2008) required a system to empower staff by having a hospital specialty team in assessing an imminent change in a patient’s condition which led to the creation of a mental health rapid response team. With the increasing incidence rates of behavioral emergencies over time, hospitals across the nation started implementing a Behavioral Emergency Response Team (BERT) or Psychiatric Response Team (PRT) to assist in de-escalating behavioral emergencies. Review of literature identified at least five hospitals nationwide that have developed a Behavioral Emergency Response Team (BERT) to respond in aggressive behaviors outside psychiatric units. A BERT is considered the psychiatric equivalent of the hospital’s RRT for medically compromised patients.

Implementation of BERT has been found to assist with reducing behavioral emergencies and improve workplace safety (Zicko, Schroeder, Byers, Taylor, & Spence, 2017). It has been shown to decrease workplace violence and improve staff safety and satisfaction. A county hospital in Dallas, TX recently added the role of BERT in 2017. It aimed to respond to behavioral emergencies across the hospital outside the mental health setting. It identified that a lack of staff training in recognizing and managing escalating assaultive behaviors places staff at
higher risk for WPV (OSHA, 2016). Nurses have communicated ongoing distress and worry while caring for mentally unstable aggressive patient (Gillespie, Gates, & Berry, 2013) It was found that the nursing staff has no means of prospectively identifying violent patients in their units. With its quality improvement efforts, BERT identified an initiative of incorporating a predictive tool and a brief module training. With the implementation of non-pharmacological behavioral interventions, the implementation of an aggressive behavior predictive tool - Aggressive Behavior Risk Assessment Tool (ABRAT), and a brief module training (BMT) emphasizing strategies on WPV, the level of confidence in handling a behavioral emergency healthcare staff and the effect on WPV is anticipated to improve. This inquiry led to the development of this DNP scholarly project.

**Clinical Question**

In a hospital setting, how does implementation of Aggressive Behavior Risk Assessment Tool (ABRAT), and a WPV Brief Module Training (BMT) affect workplace violence and safety over a period of three months?

**Aim of the Project**

The purpose of this DNP scholarly project is to evaluate the effectiveness of the Aggressive Behavior Risk Assessment Tool (ABRAT) and a brief module training (BMT) in preventing workplace violence, improving safety while increasing level of confidence in handling behavioral emergencies among non-psychiatric nurses, and increasing work efficiency of the Behavioral Emergency Response Team (BERT) over a period of three months. The DNP project will involve implementing ABRAT in predicting aggressive patients, and implementing BMT to assist in verbal de-escalations and practical information on preparing for, preventing, responding to and reporting workplace violence.
Review of Evidence

Search Method

A search of Cumulative Index to Nursing and Allied Health Literature (CINAHL), Psychiatric Information Database (PsycINFO), Psychology Articles (PsycARTICLES), and Academic Search Premier databases using a combination of key words and phrases identified articles related to BERT, ABRAT and improving clinician confidence in coping with patient aggression. The words used were behavioral emergency response team, psychiatric response team, psychiatric team, rapid response, ABRAT, workplace violence, and staff confidence. During the search, articles identified focused on the development of the Behavioral Emergency Response Team (BERT), screening tools for predicting aggressive patients, and instruments used in evaluating educational programs in preventing workplace violence.

Behavioral Emergency Response Team (BERT)

Pestka, Hatteberg, Larson, Zwygart, Cox, and Borgen (2012) described the implementation of behavioral emergency response team (BERT) and concluded that not only it is a valuable resource for managing behavioral emergencies in improving patient and staff safety but also it increases staff satisfaction. Jones, Manno, and Vogt (2012) presented the development of a psychiatric RRT and demonstrated improvement in overall behavioral events with a 21% reduction in combined behavioral and code gray events. Zicko et al. (2017) published an article regarding initiating a BERT that resulted to an 87% percent decrease in restraint use, 93% decrease in security intervention, and 90% staff assault reduction. The investigators concluded that BERT initiative can be a significant resource team in increasing patient and staff safety in facilities with or without a mental health unit.
Since the implementation of BERT at a county hospital in Dallas, TX, requests for BERT assistance has been steadily trending upward, averaging to 48.9 calls every month (Parkland Health and Hospital System, 2019). Prior to implementing this DNP project, a total of 89 BERT activations came from 13 Hospital A unit and 70 activations came from 9th Orthopedic unit. In January of 2019, there were a total of 75 BERT activations hospital-wide, with the highest requests from 9th Orthopedic unit (14 calls), followed by 13 Hospital A unit (8 calls). Implementation of the BERT continues to provide support among hospital staff in decreasing staff and patient injuries (PHHS, 2019). Though it is considered to be one of the hospital’s effective resources in addressing behavioral disturbances among patients, there is no standardized aggressive risk screening strategy implemented in the medical-surgical units. Preventing WPV using a violence risk assessment tool with acceptable sensitivity and specificity and a brief module training on WPV would complement the implementation of BERT in this hospital.

**Violence Risk Assessment Tools**

The National Institute for Occupational Safety and Health (“CDC Training”, 2016) promotes use of risk assessment tools to estimate individuals for aggressive behaviors. The organization mentions examples of assessment tools including the Triage tool, Indicator for Violent Behavior, and Danger Assessment Tool. The Triage tool asks five questions to obtain information on history of victimization, suicide attempts and assaults preventing domestic violence workplace spillover. The Indicator for Violent Behavior is better known as the five observable behaviors of STAMP – staring and eye contact, tone and volume of voice, anxiety, mumbling, and pacing. Both these tools assess for risks in the emergency unit settings. The Danger Assessment Tool which has a scale from 1-5, assesses violence risk and approved for use
in a community mental health clinic setting in New York. The NIOSH does not recommend a specific violent risk assessment tool but emphasizes that nurses use a quick practical tool.


**Aggressive Behavior Risk Assessment Tool (ABRAT)**

Kim, Ideker, and Mannes (2011) discussed and evaluated the utility of a tool in predicting aggressive patient called Aggressive Behavior Risk Assessment Tool (ABRAT) in a medical-surgical unit. After using a multivariate logistic regression model, the researchers developed a 10-item assessment tool (ABRAT) as a set of parsimonious items from a 17-item list predictive of violent behaviors. The 17-item list is a combination of an available screening tool called M55 tool and STAMP tool; it became the 10-item ABRAT as a result of this research as shown in figure 1. The researchers found ABRAT to have an acceptable inter-rater reliability at 0.647. With the cutoff score of 1, the results showed sensitivity at 70.9% and specificity at 89.3%. They concluded the tool to be supportive in anticipating aggressive patients in medical-surgical units (Kim et al., 2011).

**Conceptual Framework**

The revised Iowa Model of Evidence-Based Practice framework was used for the implementation of the ABRAT and brief module training (BMT) (Buckwalter et al., 2017). Figure 4 shows how this framework was applied in this project. There were three main key decision points needing to be fulfilled prior to moving to the next level.
Methods

This DNP project implemented an Aggressive Behavior Risk Assessment Tool (ABRAT) and a Brief Module Training on WPV. Project outcomes were anticipated to demonstrate a difference in overall level of confidence in dealing with aggressive behaviors among nurses, and workplace violence report.

Project Design

The DNP project design was a pre-post-test design. Prior to and after the implementation of the interventions, the project participants answered a 10-item self-assessment tool called Confidence in Coping with Patient Aggression Tool (Thackrey, 1987). The project leader utilized this tool among single group of healthcare worker participants and matched the responses at 3 months after implementation of interventions. The project design was mixed with monitoring quality and safety outcomes through the workplace violence report.

Participants

Given the limits and nature of the clinical setting, this DNP project used a convenience sample of 57 participants. The sample participants include registered nurses (RNs) who are at least age 21, from the top two medical-surgical units observed to have the highest utilization of BERT consults beginning October 2017 to Jan 2019. Eligible participants can be employed full-time or part-time who have direct patient nursing care in that unit. Participants who did not answer both pre-survey and post-survey were also excluded in the sample. After the post-survey, a convenience sample of 28 participants matched pre-post-test.

Setting

The project leader initiated these interventions at a county hospital in Dallas, TX in two nursing units, 9th Orthopedic unit and 13A Hospitalist unit, both medical-surgical units within
the hospital. The project leader chose the units with the greatest number of BERT activations as of January 2019 to initiate this project. The amount of time allotted to complete the DNP project was three months.

**Instrument**

The validated instrument “Confidence in Coping with Patient Aggression Instrument” (Thackrey, 1987), was used to rate participants’ comfort, ability, and confidence in effectively and safely approaching aggressive patients. This instrument is a standardized scale with a unifactorial 10-item 11-point Likert scale.

After the pre-surveys were collected, a Brief Module Training (BMT) was disseminated as an in-service to nurses and healthcare staff on the medical-surgical units. The BMT consists of two online presentations to assist in verbal de-escalations and practical information on preparing for, preventing, responding to and reporting workplace violence. An online 17-minute BMT power point video including verbal de-escalation techniques and evidence-based recommendations on managing aggressive patients was available for nurses to review to enhance the non-pharmacological behavioral interventions, accessible either at work or at home. This short presentation focused on skills on five communication skills in the context of confrontation management: listen, empathize, ask, paraphrase, and summarize combined with offering solutions, confirming course of actions, and taking action (Williams, 2002). The BERT educational materials and recommendations were added on the second presentation to enhance knowledge and confidence in dealing with aggressive patient.

While staff learned more about the BMT, nursing staff utilized the Aggressive Behavior Risk Assessment Tool (ABRAT) in assessing newly admitted patients for risk of aggression. With approval from their leaders, this assessment tool became part of their nursing routine.
assessment. Each of the ten-item behaviors is worth one (1) point. A score of two (2) or more is considered high risk. Aggressive events will trigger de-escalation recommendations and stat BERT consults. Section B of the ABRAT report was captured by alternatively using the hospital’s Safety Posts (SP). Unit leaders collected the SPs including physical and verbal attacks against staff or other patients.

**Data collection procedures**

All pre-test and post-test survey were collected electronically. All surveys were completed by participants using a REDCap (Research Electronic Data Capture) link. This link was disseminated using posters and via email with the help of unit leaders. Following hospital Institute of Review Board (IRB) conditions, the project leader used REDCap to collect data from the instrument. After data collection, SPSS program was utilized for data analysis.

**Ethical Considerations**

Prior to initiation of the project, the Institute Review Board governing the hospital evaluated the project and issued the approval. The hospital Office of Research Administration granted the site approval. The Institute Review Board of the university reviewed the project proposal and also granted approval on July 8, 2019.

**Data Analysis**

Once raw data were retrieved from REDCap, the researcher entered data into the Statistical Package for the Social Sciences (SPSS) software. Data Analysis included descriptive statistics and inferential statistics to review the sample demographics. A paired t-test was utilized to calculate significant difference between mean scores of the instrument before and after the interventions. Internal consistency measurement using Cronbach’s alpha was reported. Cohen’s $d$ effect size was calculated.
Results

Demographic Characteristics

A paired total of 28 participants who answered the pre-survey and post-survey are shown in Table 1. Majority of the participants are female (N=26). From 57 initially interested survey participants, the final number of participants matching the pre-survey and post-survey analyzed is 28 (51% attrition rate). Table 3 shows the majority of sample in both units have a Bachelor’s Degree as the sample’s highest level of education. The majority of the sample were in age group 31-35 (28.6%) followed by group 26-30 (17.9%), and group 21-25 (14.3%) as shown in Table 5.

In analyzing the frequency of aggression by age group, age group 31-35 have the highest percentage (43.8%) of experiencing both physical and verbal aggression in the past 12 months during the pre-survey (Table 6).

Confidence in Coping with Aggression Instrument

Table 7 shows the central tendency statistics, with dispersion, confidence interval, and t-value after comparing means using a paired sample t-test pre and post-interventions. The mean confidence scores among participants increased by 8.04 after the brief module training and ABRAT interventions. This significant difference is shown in three ways. First, with 27 degrees of freedom and referencing from the Percentage Points of Student’s t distribution, the t value shown on Table 7, t(27) = 2.533, p = .017, is greater than the critical value of 2.052 (Burns & Grove 2009). Second, the p-value is .017 which is less than .05. Third, the confidence interval does not cross zero. Therefore, it is concluded that the instrument score means pre and post-interventions are statistically significantly different. Cohen’s d resulted to an estimated at .48 which is a medium effect based on Cohen’s (1992) guidelines.

Workplace Violence report
Three months before the implementation of the project, there were three reported use of violent restraints in the unit. Reported use of violent restraints went down to zero three months after the project implementation. Table 9 illustrates comparison of BERT activations pre and post interventions. There were about six BERT activations from April to June in 9th Orthopedic Unit. The BERT activations received from July, August and September were down by three activations. There were four participants who answered having verbal aggression the past three months post interventions, and six participants stated having both verbal and physical aggression. When asked if these aggressive events have been properly reported according to hospital protocol, 30% of this group answered not properly reported the aggressive events (Table 10). In contrast to the survey-reported 9 aggressive behaviors on 9th Orthopedic unit among the participants, official online retrieval of aggressive reports during the past three months from the same unit reveals only three incidents of aggressive behavior, confirming previous reports of underreporting of aggression (Wray, 2018).

**Three-month Post-Intervention Feedback**

At the end of the survey, the participants wrote comments about implementation of the ABRAT, and BMT. Comments from the participants were mostly favorable comments on how the ABRAT helped raise awareness on aggressive patients, how ABRAT allowed better understanding of the risk factors, and how the BMT provided good education on verbal de-escalation. The participants also commented on BERT as an excellent resource for workplace violence prevention. Shown in Figure 7 were some of the comments about implementation of the ABRAT and BMT. Shown in Figure 8 were comments about BERT.

**Discussion**
The current project aimed to evaluate the effectiveness of Aggressive Behavior Risk Assessment Tool (ABRAT) and the Brief Module Training (BMT) in preventing workplace violence, improving safety among healthcare staff and patients, and increasing efficiency of the Behavioral Emergency Response Team. The results from Confidence in Coping with Aggression instrument analysis indicated that the combined ABRAT and BMT made an overall positive impact on the level of staff’s confidence in dealing with an aggressive patient. Statistical significance was found on the issue of feeling safe, effective techniques, and being self-assured in the presence of an aggressive patient with \( p < 0.5 \). Starting with an initial sample of 57 participants and concluding with 32 participants, matched sample resulted to a lower sample size of 28. The Cohen’s \( d \) effect size \((d=0.48)\) determined the extent and magnitude of the mean difference and considered to be a moderate. These results showed a \( p \)-value that is statistically significant with an effect size considered to have moderate clinical significance.

The Cronbach’s alpha helps measure internal consistency between the items in the Confidence in Coping instrument. For this scale, the pre-test and post-test Cronbach’s alpha demonstrated exceptional reliability at 0.939 and 0.959 respectively. The project leader found the scale to be consistently reliable in measuring clinician confidence coping with patient aggression similar to prior studies (Thackrey, 1987; Davies et al, 2015; Guay et al., 2016; Lamont & Brunero, 2018).

For this scholarly project, the project leader implemented ABRAT and BMT in two acute care units in a county hospital that allows nursing staff to identify potentially violent patients and to create an appropriate nursing plan of care relevant to the patient’s behavior. The initial ABRAT project was tested in an acute care hospital setting, making the hospital setting of this DNP project pertinent to the original ABRAT’s design.
In this acute care setting, one would like to be certain that anyone with a positive score on ABRAT will predict an aggressive behavior as opposed to having a negative test having an aggressive event. Thus, higher specificity over higher sensitivity is preferred in this clinical setting (Aggarwa, 2018). Using a higher cutoff score greater than one is preferred with the current data gathered. Though the number of ABRAT assessments seem moderate in a span of a month (116 assessments), further ABRAT assessment data can improve the Receiver Operating Characteristics (ROC) coordinates in detecting the optimal cutoffs (Aggarwa, 2018).

ABRAT’s documentation was later transitioned to be included within the hospital electronic health record (EHR) system using the notes section only. Also, the ABRAT’s inclusion into the hospital EHR allowed nursing staff to incorporate nursing care plans applicable to the patient’s behavior (see Figure 9). This in turn increased their awareness on different nursing interventions in preventing patient’s escalating behaviors. The nursing staff in these units now received a list of optional behavioral interventions for patients assessed to have anxiety, confusion, psychosis, mania, and aggression, which were only available to psychiatry staff in the psychiatric units.

The resulting increase in confidence in coping with patient aggression compared from pre and post interventions (ABRAT and brief module training) suggest that even a brief training program in combination with a risk assessment tool is beneficial in preventing workplace violence. Results showed similar findings to demonstrate improvements in confidence in coping with patient aggression post-staff training (Guay et al., 2016; Price, Baker, Bee, & Lovell, 2015). Price et al. (2015) reported consisted findings in their literature review showing ninety percent of the studies with significantly higher confidence after training. Participants can readily access the Brief Module Trainings (BMT) repeatedly as their need arises. Given the positive effect of this
brief module training in improving staff confidence, it can be deduced that utilizing BMT can enhance knowledge retention in between annual training for workplace violence prevention. While it is required among psychiatry staff in the ED to renew their yearly SAMA training, this brief module training can also be used as a prerequisite to workplace violence prior to their annual SAMA renewal training.

With continued WPV prevention, safety among hospital staff is anticipated to improve. WPV injuries and days off work from injuries is expected to decrease. Prevention of WPV has the potential to save $ 94,156 in cost of workplace violence by hospital patients or visitors (Speroni, Fitch, Dawson, Dugan & Atherton, 2014)

**Limitations**

Several limitations relate to this project. The project design used a one-group pretest-posttest design, without including a control group. Though it is a more common design, post-test scores can be altered by maturation effects, testing effects, and hawthorn effects. Having a control or comparison group would greatly strengthen the validity of the findings.

The project leader encountered push backs from some unit leaders in participating to this project. One reason being the acuity of their unit precludes staff from their regular tasks. On the other hand, some units will not participate in the project even as control group given their low BERT activation rates. Participation in the project is limited by units commonly utilizing the Behavioral Emergency Response Team and their management approval.

Potential researcher bias cannot be eliminated as the person who created the presentation of the workplace violence brief training is also the DNP project leader. Non-randomization of the group for practical reasons is another limitation of applicable to this project. Although there are about 57 participants in the pretest and 32 participants in posttest group, the effect size is
considered moderate. Hawthorne effect is another limitation that may change participants behavior to become more productive, thus potentially increasing their posttest scores (Burns & Grove, 2009).

With the ABRAT instrument, patients who have high scores are identified. Currently, patients assessed to have high ABRAT scores are manually identified by placing a high-risk indicator outside their room. Though it may seem ambitious to modify the system for this DNP project, it is a costly upgrade to include the ABRAT instrument into the electronic health record system. The benefits of reducing staff injury, increased confidence in handling aggression and improved safety will be evaluated against the cost of documentation upgrades and staff injury absences.

**Implication for Practice**

Following the Iowa Model for evidence-based practice, the implementation of ABRAT can be duplicated in other units of the hospital during the admission process for detecting potentially violent clients. As a prevention instrument in monitoring and reduction of patient aggression, admitting units including emergency departments and observation units can benefit from this predictive tool. Learning the skills of verbal de-escalation using therapeutic communication via the Brief Module training in combination with the ABRAT instrument can heighten the awareness and predictability of an aggressive event, thus allowing reasonable time to implement appropriate interventions on high risk clients. With the Iowa Model, hospital-wide implementation of these interventions is anticipated.

While in the early stage of the project, having a more robust documentation system in incorporating ABRAT and monitoring aggression reports could assist in continuous safety improvement and WPV prevention. Having a warning flag inside the EHR can help hospital
staff raise their awareness of the patient’s potential for aggression. Creation of a list of high ABRAT patients can help BERT in identifying patients early prior to the aggressive event. With lower aggression reports from the official hospital system versus the survey reported in this project, an opportunity for improvement in having an effective reporting system should be prioritized.

A criterion for success of this project initiative depends on ensuring sustainability. Involving key hospital stakeholders in the development and implementation of interventions in this project will foster sustainability (Chambers, 2015). Support from leaders in different units, collaboration among managers and staff, continued willingness to improve and to learn from opportunities warrant and promote sustainability of evidence-based initiatives. Assuming successful sustainability of these interventions in the unit and gradually hospital-wide, BERT requests should decrease as staff becomes more confident and comfortable in addressing aggressive patient behaviors and therefore increase BERT efficiency.

Conclusion

Evidence-based studies have proven the positive influence of implementing BERT in deescalating behavioral emergencies and as a valuable tool in workplace violence prevention and improving staff and patient safety. Since BERT has been implemented in this hospital setting and has been reported to help increase the safety presence for hospital staff, the Iowa Model for evidence-based practice allowed the project leader of this scholarly paper to utilize two interventions to continue to improve WPV. Using the survey approach, this project demonstrated that a tool for workplace violence other than the BERT, specifically the implementation of the ABRAT instrument and a brief module training can have a direct positive impact on staff confidence in coping with aggressive patient, and indirect positive impact on
patient and staff safety, physical restraints and BERT efficiency. Future research is needed to strengthen validity of ABRAT in acute care hospital setting. Future research is also needed in navigating staff’s perception on WPV underreporting that may affect current WPV interventions.
References


Parkland Health and Hospital System. (2019, March 7). *BERT Team Meeting*. Dallas, TX


# Tables

## Table 1. Gender Analysis

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Table 6. Agitation experience per age

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Table 7. Confidence in Coping Tool Statistics

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Paired Samples Correlations

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Paired Samples Test

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<th>df</th>
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Table 8. Restraints Report

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Table 9. BERT Activations

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Table 10. Agitation Experience Report

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Figure 1. The Aggressive Behavior Risk Assessment Tool.
Figure 2. The Confidence in Coping with Patient Aggression Instrument
Figure 3. The Iowa Model Revised. Used with permission from the University of Iowa Hospitals and Clinics, copyright 2015. For permission to use or reproduce, please contact the University of Iowa Hospitals and Clinics at 319-384-9098.
Figure 4. Conceptual Framework using Iowa Model
Dear Principal Investigator,

Your New Study was reviewed and ACCEPTED on Friday, June 07, 2019.

Your submission was reviewed and determined to meet Exempt criteria under 45 CFR 46.104(d). The Designated Reviewer made regulatory determinations for this study which may be found in eIRB in the Determinations tab.

This exempt determination does not expire.

If changes are made to this research which may affect this determination, submit those changes to HRPP for review.

Thank You

[Signature]

Warning: This is a private message for authorized UT Southwestern employees only. If the reader of this message is not the intended recipient you are hereby notified that any dissemination, distribution or copying of this information is STRICTLY PROHIBITED.

University of Texas Southwestern Medical Center
Institutional Review Board

5323 Harry Hines Boulevard
Dallas, Texas 75390-8843
Phone: 214-648-3860
Fax: 214-648-2171

Figure 5. UTSW IRB Approval
Date: 8 July 2019

PI: Mark Lopez
PI Department: College of Nursing
The University of Alabama in Huntsville

Dear Mark,

The UAH Institutional Review Board of Human Subjects Committee has reviewed your proposal titled: Behavioral Emergency Response Team (BERT): Tools for Workplace Violence and Safety Improvement and found it meets the necessary criteria for approval. Your proposal seems to be in compliance with these institutions Federal Wide Assurance (FWA) 00019998 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46).

Please note that this approval is good for one year from the date on this letter. If data collection continues past this period, you are responsible for processing a renewal application a minimum of 60 days prior to the expiration date.

No changes are to be made to the approved protocol without prior review and approval from the UAH IRB. All changes (e.g. a change in procedure, number of subjects, personnel, study locations, new recruitment materials, study instruments, etc) must be prospectively reviewed and approved by the IRB before they are implemented. You should report any unanticipated problems involving risks to the participants or others to the IRB Chair.

If you have any questions regarding the IRB’s decision, please contact me.

Sincerely,

Ann L. Bianchi
IRB Chair
Associate Professor, College of Nursing

Figure 6. UAH IRB Approval
**Figure 7. Comments about ABRAT implementation and BMT**

Comments about the implementation of ABRAT and brief module trainings

- "I think it helped raise awareness for patient's that could be potential issues on the floor so that staff were more aware and alert around them."
- "ABRAT notices on pt doors has made it easier to when a patient is an aggressive pt even if it is not your assigned patient."
- "It is good and educational of how to de-escalate patient."
- "Will be nice to have this as a screening tool to hopefully identify the risk early."
- "I think it gave us a good understanding of really examining the risk factors for a patient potentially becoming aggressive."

**Figure 8. Comments about the BERT**

Comments about the BERT

- "The BERT team is an excellent resource for those patients who have potential for becoming aggressive or who are already aggressive. Even if there's a small interest in them becoming more aggressive, it's reassuring to know that we can call them at anytime."
- "BERT team is top-notch. I always feel reassured when they respond."
- "Good to know that they are available, however sometimes they act like we did the wrong by calling them. There are times when pt is acting up before they arrive and then they change."
- "BERT team is helpful. Operator asks too many questions during call though."

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Figure 9. ABRAT One month and Three months